The Impact of College Education on Recycling Practices

An Honors Thesis (HONR 499)

by

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Abstract

This study focuses on the impact of a college education on recycling rates. Higher education often allows people to see the impact of their individual behaviors on the environment and introduces them to methods of reducing environmental harm. While the educational aspect of attending college may increase recycling rates, the institutional barriers of an actual college environment (e.g. information about proper recycling on/around campus or recycling bins provided around campus) may inhibit an individual's recycling ability, despite their existing knowledge.

There are many factors to take into consideration when examining recycling rates among individuals. What one believes the impact of their actions (e.g. recycling) may significantly change their behaviors towards the environment, as well as their knowledge of conservation strategies. Knowledge of climate change and biospheric concerns also significantly impacts one's willingness to donate to or volunteer for environmental causes (Katz-Gerro, 2015). On this front, (college) educated people tend to be in favor of efforts towards sustainability, such as recycling and hybrid car ownership. In fact, a college degree is seen as the most associated predictor of pro-environmental behaviors (Laidley, 2013).

While a link between college education and environmentally friendly behaviors in general (Laidley, 2013), it is important to see if the institutions responsible for education are doing their part to contribute to practical knowledge of and ability to recycle on their campuses, and whether these physical or institutional boundaries created by the school are inhibiting people's frequency of recycling.

Acknowledgements

I would like to thank Dr. Rachel Kraus for her constant, patient guidance throughout (and before) the research process, regardless of which continent I was on. Her advice and assistance were fundamental in my ability to complete this project successfully. I would like to thank my parents for listening to me talk about this project nonstop for a year without complaint, and my roommates for helping me keep my head above water.

Process Analysis Statement

In the Spring semester of my sophomore year at Ball State I took a sociology research methods class. In this course, I conducted a quantitative research project that examined, "How does a college atmosphere impact sustainable values?" After getting my first taste of research in the field of social and environmental sustainability, I knew that I wanted to focus my Honors Thesis on adapting that project and taking a more serious and independent approach on a similar topic.

I spent the following year studying in the Netherlands, where I was surrounded by a very different social environment, especially in respect to how people interact with the earth and waste. During my time studying at the University of Groningen, I wrote a 25-page research paper about waste management in the Netherlands for my Environmental Management course. This paper increased my awareness of how everywhere in the world chooses to manage their waste and handle their relationship with the environment in a different way.

Around this time, I began emailing my thesis advisor about potential research questions and areas of focus. By the end of the summer, I had decided that looking at rates of recycling among college students would be my main focus for my thesis. Although I had initially wanted to explore a broader question related to sustainability practices in general, studying recycling rates among college students provided a way to get the most reliable quantitative data with the type of research that I wanted to conduct.

The majority of the Fall 2019 semester was spent solidifying research questions to be used in guiding my survey and planning out the process to complete my thesis. I applied for IRB approval at the beginning of the Spring 2020 semester and created my survey in Qualtrics. After

receiving IRB approval, I opened my survey for two weeks and received 134 respondents. After closing my survey, I exported the Qualtrics data to SPSS and ran cross tabs (and coded some variables) to analyze the data that will be used for my project.

This project taught me a lot about self-motivation, and I believe it has greatly prepared me for a future in grad school. One of the most difficult things about conducting this sort of research was getting a diverse pool of respondents. When looking at things like recycling rates, I think it is really important to get representation from many different groups. Females typically take surveys more than males, but I would have liked to have had a more equal base of respondents. Survey distribution through my personal social media is definitely skewed more towards people who live a similar lifestyle as myself – in future research projects I would like to obtain a more diverse sample to get the most representative data.

The Impact of College Education on Recycling Rates

Introduction

This study focuses on the impact of a college education on recycling rates. Higher education often provides individuals with the tools and knowledge to understand their impact on the environment, in addition to introducing methods of reducing environmental harm. While the educational aspect of attending college may increase recycling rates, the institutional barriers of a college environment (e.g. information about proper recycling on/around campus or recycling bins provided around campus) may inhibit or support an individual's recycling ability, regardless of their existing knowledge.

The educational aspect of college is one of the main factors in promoting recycling and campus sustainability. As can be expected, knowledge and education of environmental issues significantly increases sustainable actions (Manolas 2013, Perrault, 2018). Information on what methods are effective in getting students to recycle is imperative for universities and other institutions to know in order to ensure that people are recycling as much as possible.

Additionally, if colleges are aware of their impact on the lifestyle choices of individuals, they might be able to make a larger societal and global impact by supporting small changes in individual behaviors. There is an increased need for sustainability education/courses at colleges and universities that has not been met with the proper funds or pace necessary to meet the environmental problems at hand (Faham, 2017). While education levels are more predictive of sustainability practices than economic factors (Laidley 2013, Wyveen 2014), many college students also cite money-saving as a reason why they choose more sustainable living habits, which often drive them to recycle (Perrault, 2018).

On top of educational and financial motivators, a lack of group norms or peer pressure related to environmental behaviors among college populations means that these behaviors most likely do not occur in a group setting and instead require a great deal of individual motivation (i.e. people who don't recycle are surrounded by peers who also don't recycle, so peer pressure isn't a motivating factor) (Wyveen, 2014). Environmental concerns simply aren't a top priority among many college students. The culture and living conditions on a college campus aren't always conducive to thinking about sustainability. A group identity – influenced by biographical factors, personal identity, social subculture, childhood friends and educational groups – almost always must be geared towards environmental action specifically in order for

positive recycling changes to be made (e.g. for people to be persuaded to go out of their way to recycle) (Conway, 2012).

At the institutional level, it is important for universities to stress individual and local benefits to students when it comes to discussing recycling as well as allowing student groups to have more say in university sustainability programming and recycling accessibility (Faham, 2017). When students are given the opportunity to think critically about the future and identify individually with issues, they are more likely to actively participate in personal as well as university level towards sustainable actions (Conway, 2012). Change can't be forced upon people, but opportunities need to be provided for them to make change. Universities that design educational experiences in an environmentally friendly manner in order to equip the target group (students) with the what, why, and how behind sustainable living and, specifically, recycling are best able to initiate change (Yeboah, 2016). What seems to be most successful in making students change is finding the marriage between practicality and desire – what will ultimately make an impact towards a sustainable future and what is aesthetically and culturally appealing to young people (Manolas, 2013).

This project examines what factors encourage college students to increase, decrease, or remain constant with their recycling behaviors on a college campus environment. It also looks into the specific aspects of a college environment and campus that either encourage or inhibit those behaviors.

Methods

Survey participants were asked to complete a 19-question survey in Qualtrics related to personal recycling behaviors, perspectives of the environment, their college experience, education level, and peer/family behaviors. Subjects were between 18 and 25 years of age, live in the United States, and were currently or previously enrolled in college, (or recently graduated from college or university. Minors, people over the age of 25, and individuals who had not attended college for more than one semester did not qualify for participation in this study.

A total of 134 responses were recorded over two weeks. The survey data were exported from Qualtrics into SPSS for data analysis. Crosstabs were run comparing the question "Has your rate of recycling increased, decreased, or stayed the same since coming to college?" to factors including gender, year in college, sustainability courses taken, and knowledge of environmental impact.

Results

What is your gender identity? – Selected Choice * Has your rate of recycling increased, decreased, or stayed the same since coming to college? Crosstabulation

Count

		Has your rate of recycling increased, decreased, or stayed the same since coming to college?			
		Increased	Decreased	Stayed the same	Total
What is your gender identity? – Selected Choice	Male	10	8	8	26
	Female	45	25	30	100
	Other (please specify)	1	1	2	4
Total		56	35	40	132

Figure 1

Fig. 1 shows the table for gender identity and rate of recycling change since coming to college. As was mentioned in the Process Analysis Statement, the number of males who participated was low (26 out of 134 participants). As a result, the percentage of males compared to females isn't as reliable. Regardless, 69% of male respondents said that their recycling rate either "increased" or "stayed the same" since coming to college. About 75% of female respondents said that their rate of recycling either "increased" or "stayed the same" in college. Given these results, there does not appear to be a large difference between males and females in terms of changes in recycling since coming to college, but 42% of all participants said that their rate of recycling "increased" since coming to college.

What is your year in (undergraduate) college? * Has your rate of recycling increased, decreased, or stayed the same since coming to college? Crosstabulation

Figure 2

			Has your rate of recycling increased, decreased, or stayed the same since coming to college?			
			Increased	Decreased	Stayed the same	Total
What is your year in (undergraduate) college?	Freshman		9	4	7	20
			45.0%	20.0%	35.0%	100.0%
			16.1%	11.4%	17.5%	15.2%
	Sophomore		7	5	2	14
			50.0%	35.7%	14.3%	100.0%
			12.5%	14.3%	5.0%	10.6%
	Junior		14	11	9	34
			41.2%	32.4%	26.5%	100.0%
			25.0%	31.4%	22.5%	25.8%
	Senior		18	12	14	44
			40.9%	27.3%	31.8%	100.0%
			32.1%	34.3%	35.0%	33.3%
	Already graduated		8	3	8	19
			42.1%	15.8%	42.1%	100.0%
			14.3%	8.6%	20.0%	14.4%
Total			56	35	40	132
			42.4%	26.5%	30.3%	100.0%
			100.0%	100.0%	100.0%	100.0%

Figure 2 shows year in college compared to recycling change since coming to college. 84% of respondents who have already graduated said that their rate of recycling had either

"increased" or "stayed the same" since coming to college. Around 30% of sophomores, juniors, and seniors said that their rate of recycling has "decreased" since coming to college.

How many courses related to natural resources, sustainability, environmental management, or other related topics have you taken while in college? * Has your rate of recycling increased, decreased, or stayed the same since coming to college? Crosstabulation

			Has your rate of recycling increased, decreased, or stayed the same since coming to college?			
			Increased	Decreased	Stayed the same	Total
How many courses related to natural resources, sustainability, environmental management, or other related topics have you taken while in college?	None		27	18	20	65
			41.5%	27.7%	30.8%	100.0%
			48.2%	51.4%	50.0%	49.2%
	1		18	7	9	34
			52.9%	20.6%	26.5%	100.0%
			32.1%	20.0%	22.5%	25.8%
	2		7	4	5	16
			43.8%	25.0%	31.3%	100.0%
			12.5%	11.4%	12.5%	12.1%
	3		1	1	0	2
			50.0%	50.0%	0.0%	100.0%
			1.8%	2.9%	0.0%	1.5%
	4 or more		3	5	6	14
			21.4%	35.7%	42.9%	100.0%
			5.4%	14.3%	15.0%	10.6%
Total			56	35	40	132
			42.4%	26.5%	30.3%	100.0%
			100.0%	100.0%	100.0%	100.0%

Figure 3

Fig. 3 shows how many natural resource courses respondents had taken compared to the rate of recycling change since coming to college. Of respondents who said that they had taken one natural resource course (25.8% of total respondents), 52.9% said that their rate of recycling had increased since coming to college. Of those who had taken two natural resource courses, 75% said that their rate of recycling increased or stayed the same since coming to

college. On the other side of the spectrum, 35.7% of respondents who have taken four or more natural resource classes said that their rate of recycling had decreased since coming to college.

			Has your rate of recycling increased, decreased, or stayed the same since coming to college?			
			Increased	Decreased	Stayed the same	Total
Since coming to college, has your knowledge of how your consumption impacts the environment:	Increased	Count	47	26	28	101
			46.5%	25.7%	27.7%	100.0%
		% within Has your rate of recycling increased, decreased, or stayed the same since coming to college?	83.9%	74.3%	70.0%	76.5%
	Decreased	Count	1	1	0	2
			50.0%	50.0%	0.0%	100.0%
		% within Has your rate of recycling increased, decreased, or stayed the same since coming to college?	1.8%	2.9%	0.0%	1.5%
	Stayed the same	Count	8	8	12	28
			28.6%	28.6%	42.9%	100.0%
		% within Has your rate of recycling increased, decreased, or stayed the same since coming to college?	14.3%	22.9%	30.0%	21.2%
Total		Count	56	35	40	132
			42.4%	26.5%	30.3%	100.0%
		% within Has your rate of recycling increased, decreased, or stayed the same since coming to college?	100.0%	100.0%	100.0%	100.0%

Figure 4

Figure 4 compares knowledge of personal consumption impacting the environment since coming to college to rate of recycling since coming to college. 84% of respondents whose level of recycling increased since coming to college said that their knowledge of how their consumption impacts the environment has also increased since coming to college. Only 2 out of 134 (1.5%) respondents said that their knowledge of how their consumption impacts the environment has decreased since coming to college, and 101 out of 134 (76.5) of respondents

said that their knowledge of how their consumption impacts the environment has increased since coming to college.

			Has your rate of recycling increased, decreased, or stayed the same since coming to college?			
			Increased	Decreased	Stayed the same	Total
Q14_TEXT	Effective Labeling		5	4	2	11
			45.5%	36.4%	18.2%	100.0%
			8.9%	11.4%	5.0%	8.3%
	Ineffective Methods/Labeling		4	4	2	10
			40.0%	40.0%	20.0%	100.0%
			7.1%	11.4%	5.0%	7.6%
	Recycling Bags and Cans Provided		18	4	10	32
			56.3%	12.5%	31.3%	100.0%
			32.1%	11.4%	25.0%	24.2%
	Easy and Convenient		6	2	6	14
			42.9%	14.3%	42.9%	100.0%
			10.7%	5.7%	15.0%	10.6%
	Not Enough Cans/Bags		2	6	2	10
			20.0%	60.0%	20.0%	100.0%
			3.6%	17.1%	5.0%	7.6%
	Encourages Wasteful Lifestyle/Inaccessible Off-Campus Living		2	7	4	13
			15.4%	53.8%	30.8%	100.0%
			3.6%	20.0%	10.0%	9.8%
	Social Pressure to Recycle		2	0	0	2
			100.0%	0.0%	0.0%	100.0%
			3.6%	0.0%	0.0%	1.5%
Total			56	35	40	132
			42.4%	26.5%	30.3%	100.0%
			100.0%	100.0%	100.0%	100.0%

Figure 5

Figure 5 shows the coded response for question 14 of the survey. This question was an open-ended question that asked, “How do you think being in a college environment supported or got in the way of your recycling behavior? Think about recycling bags in dorms, recycling cans in classrooms, and/or having access to materials that explain what can and cannot be recycled.” I then coded the written responses into 7 categories: “effective labeling,” “ineffective methods/labeling,” “recycling bags and cans provided,” “easy and convenient,” “not enough cans/bags,” “encourages wasteful lifestyle/inaccessible off-campus living,” and “social pressure

to recycle." Of respondents who said that college campuses encourage excessive plastic consumption and a wasteful lifestyle, 54% said that their rate of recycling had decreased since coming to college. Of those who said that there were not enough recycling bags or cans on their campus, 60% said that their rate of recycling had decreased since coming to college. Of respondents who said that recycling was "easy and convenient" on their campus, 84% said that their rate of recycling either increased or stayed the same. 25% of respondents said that recycling was more accessible in college due to the recycling bags and cans provided on campus. Of those who said that recycling bags and cans were provided, 85% said that their rate of recycling either increased or stayed the same since coming to college. Of those who said that their rate of recycling had increased since coming to college, 32% sited "recycling bags and cans provided" as a reason for the accessibility.

Discussion & Conclusion

Overall, the majority (73%) of respondents said that their rate of recycling had increased since coming to college, and this rate of increase is especially noted in those who have already graduated from college and are living independently from campus. Of people who had taken one, two, or three natural resource courses in their college career, the majority had noted either no change or an increase in their recycling habits since coming to college. Of those who had taken four or more courses related to natural resources (often indicating a subject of major or minor focus), 35% said that their rate of recycling had decreased since coming to college, which was the highest of any of the other groups.

Regardless of courses taken, 76% of participants said that their knowledge of how their consumption impacts the environment has increased since coming to college, with only 1.5% noting a decrease in their knowledge. This reflects positively on the impact that a college environment (culture and accessibility) alone can have on an individual's recycling rates, even if explicit courses aren't taught on these subjects.

Of the variables that make college recycling more or less accessible, "effective labeling," "recycling bags and cans provided," and "easy and convenient" made up 43% of responses. The number of respondents who specifically noted the prevalence of recycling cans and access to recycling bags and awareness of recycling programs was 25%. This indicates a particular importance of empowering students through education and access to materials in order to recycle, which is something they will do and will *want* to do if they are informed and given the proper tools to do so.

Of the people who said that college had a negative impact on their accessibility to recycling resources (25% of respondents), the most frequently mentioned reasons for this lack of access included "ineffective labeling and education," "not enough bags and cans provided," and "encouraging wasteful lifestyle." Many of these respondents were not properly informed on how to recycle locally, including how to get the proper materials and what can and cannot be recycled (especially when moving off campus). There also is a divide in which residence halls do and do not provide recycling bags, and question as to if they even recycle at all. Multiple respondents noted the wasteful lifestyle that many colleges encourage, saying that the use of plastics in dining and residence halls was in excess and not met with proper information about how to recycle them or use better, alternative materials.

Universities may benefit from acknowledging their role in students' ability to recycle and the life-long impact of that role. A college education and environment more often than not increase an individual's ability to recycle, whether that be through accessibility, explicit education, or cultural environment in general. In order to make recycling most accessible to students, the proper materials (including bags and waste baskets) need to be provided, in addition to proper labeling and education about what can be recycled and where/how, as this differs from municipality to municipality. Universities can also encourage a less wasteful lifestyle in general by offering alternatives to plastic (such as dine-in or paper options) in addition to providing students with labeling and resources to understand the impact of their consumption on the environment. Educational institutions hold an important role in shaping the future of the world. It is vital that they recognize how impactful their attitudes, culture, and actions are on the students who attend.

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IRB Approval

SL

Sena Lim <no-reply@irbnet.org>
Fri 2/14/2020 1:46 PM
Loomis, Audrey E

Please note that Ball State University IRB has taken the following action on IRBNet:

Project Title: [1554907-1] The Impact of College Education on Recycling Rates
Principal Investigator: Audrey Loomis

Submission Type: New Project
Date Submitted: January 22, 2020

Action: APPROVED
Effective Date: February 14, 2020
Review Type: Exempt Review

Should you have any questions you may contact Sena Lim at slim2@bsu.edu.

Thank you,
The IRBNet Support Team